



US00993241B2

(12) **United States Patent**
Denham et al.

(10) **Patent No.:** **US 9,993,241 B2**
(45) **Date of Patent:** **Jun. 12, 2018**

(54) **METHOD AND APPARATUS FOR FORMING
A SELF-LOCKING ADJUSTABLE LOOP**

(56) **References Cited**

U.S. PATENT DOCUMENTS

(71) Applicant: **Biomet Sports Medicine, LLC**,
Warsaw, IN (US)

65,499 A 6/1867 Miller
126,366 A 4/1872 Wills

(Continued)

(72) Inventors: **Gregory J. Denham**, Warsaw, IN (US);
Kevin T. Stone, Winona Lake, IN (US);
Zachary Wagner, Noblesville, IN (US)

FOREIGN PATENT DOCUMENTS

(73) Assignee: **Biomet Sports Medicine, LLC**,
Warsaw, IN (US)

AU 4957264 3/1966
AU 440266 10/1967

(Continued)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 639 days.

OTHER PUBLICATIONS

US 6,238,418, 05/2001, Schwartz et al. (withdrawn)

(Continued)

(21) Appl. No.: **14/599,909**

(22) Filed: **Jan. 19, 2015**

Primary Examiner — Dianne Dornbusch

(65) **Prior Publication Data**

US 2015/0134000 A1 May 14, 2015

(74) *Attorney, Agent, or Firm* — Schwegman Lundberg &
Woessner, P.A.

Related U.S. Application Data

(60) Division of application No. 13/288,463, filed on Nov.
3, 2011, now Pat. No. 8,936,621, which is a
(Continued)

(57)

ABSTRACT

An apparatus can include a first flexible member having first and second ends and a first body extending therebetween, where the first body defines a first passage portion. A second flexible member can have first and second ends and a second body extending therebetween, where the second body defines second and third passage portions. The first end of the first flexible member passes into and through the second passage portion such that the first end extends outside of the second passage portion, and the second end of the first flexible member passes into and through the third passage portion such that the second end extends outside of the third passage portion. The first and second ends of the second flexible member pass into and through the first passage portion to form a self-locking adjustable flexible member construct.

(51) **Int. Cl.**

A61B 17/04 (2006.01)

A61B 17/84 (2006.01)

(Continued)

(52) **U.S. Cl.**

CPC **A61B 17/0401** (2013.01); **A61B 17/06166**
(2013.01); **A61B 17/842** (2013.01);
(Continued)

(58) **Field of Classification Search**

CPC A61B 17/0401; A61B 2017/0406; A61B
2017/0417; A61B 2017/0419;
(Continued)

22 Claims, 23 Drawing Sheets

